

FIG. 3A

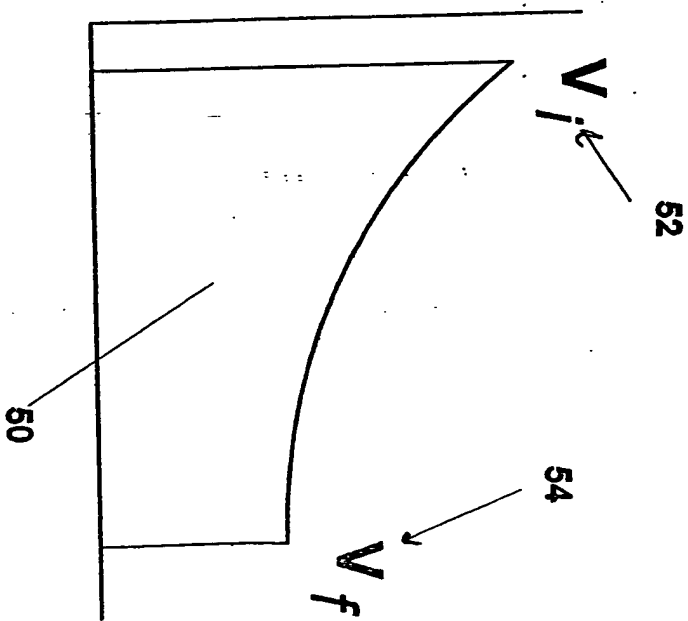


FIG. 3B

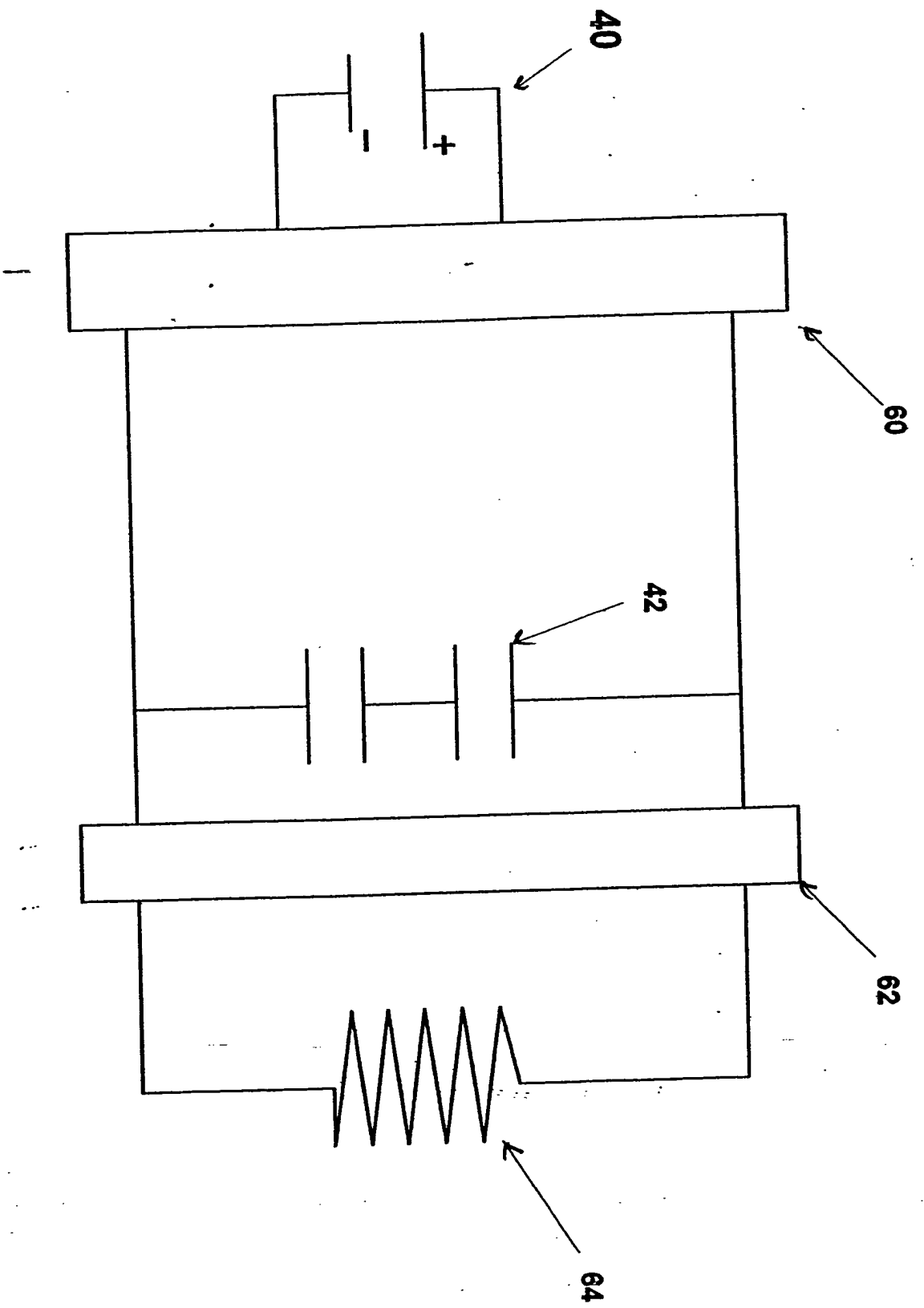


FIG. 4

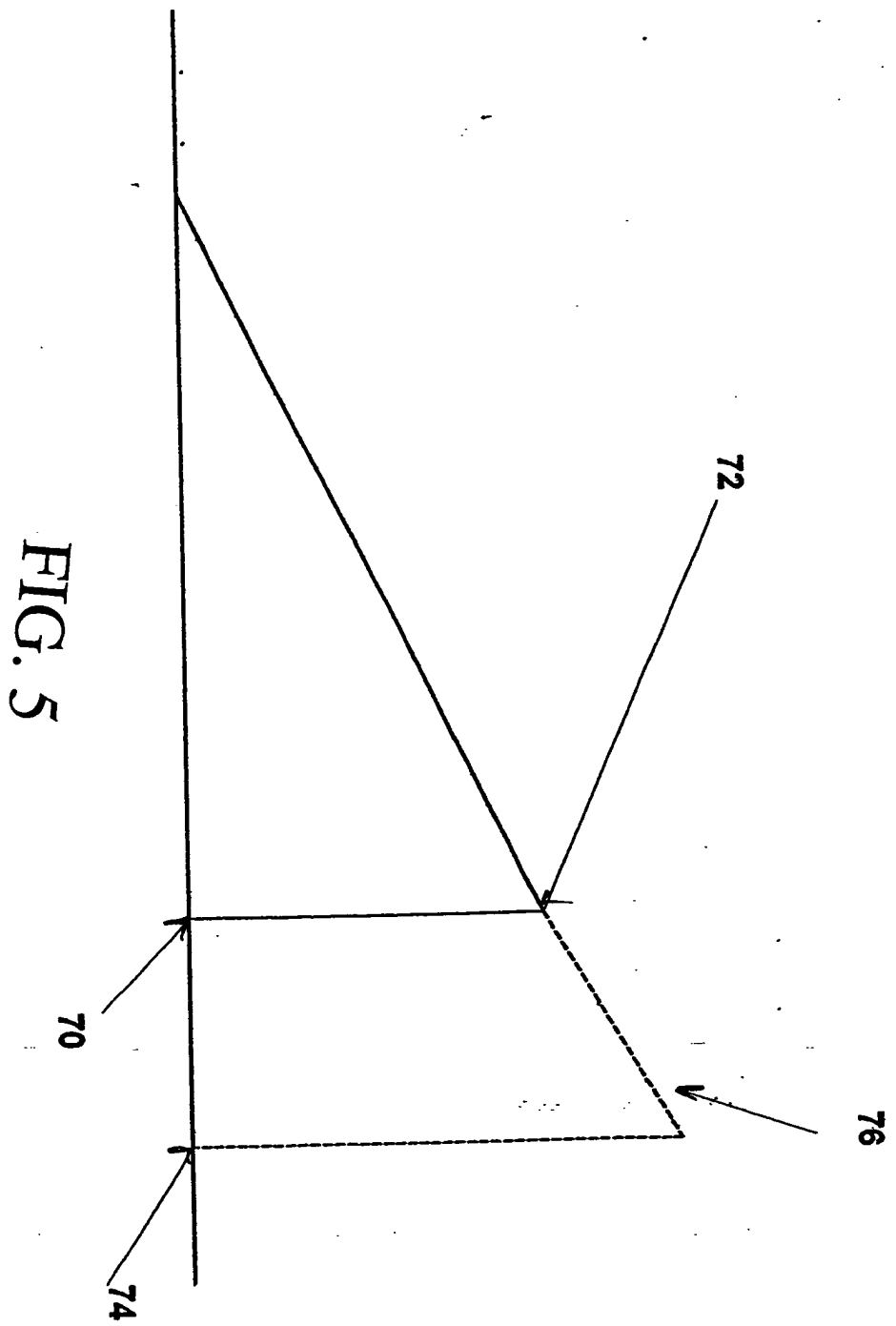


FIG. 5

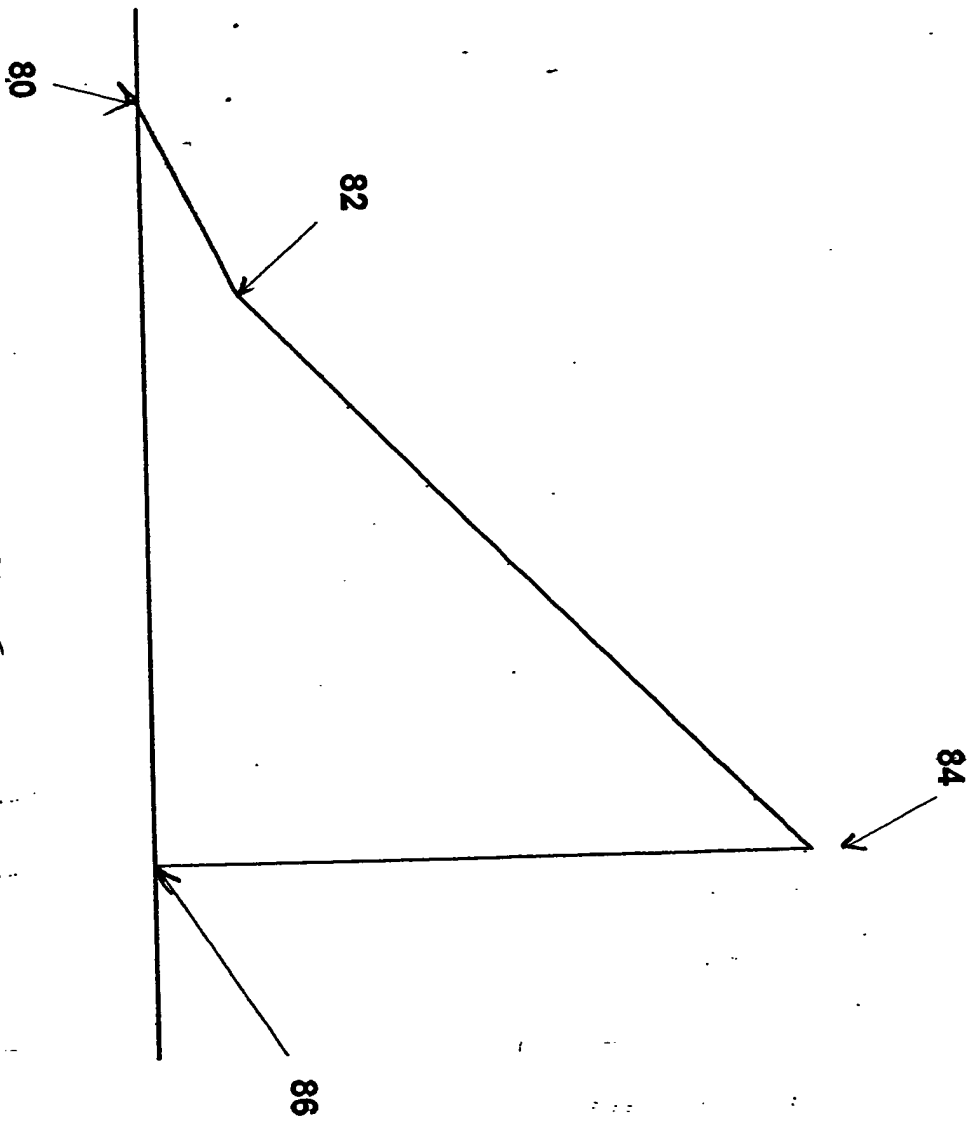


FIG. 6

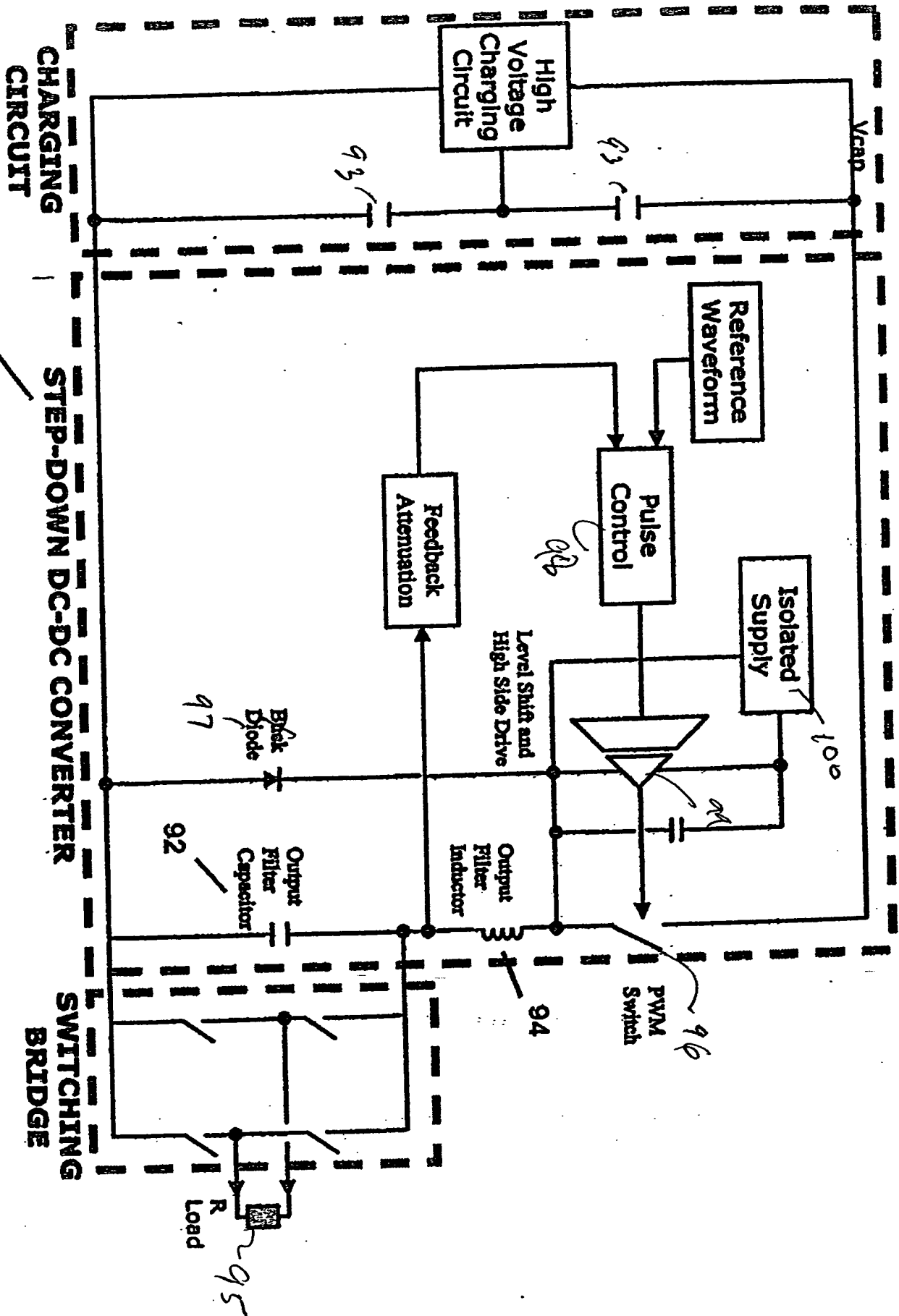


FIG. 7

**Example 1 (Single Toroid, Magnetics
Core Selector Chart Method $L = 14$
 μH)**

$L^2 = 12$ from selector chart choose 58350-A2
58350-A2 perm. 125μ $A_L = 105$ $l = 5.88$
cm

$$N = 1000 \cdot (0.014/105)^{0.5} = 11.5$$

$H = (0.4 \cdot P \cdot 11.5^2 \cdot 40) / 5.88 = 99$ (design
manual table: $\sim 33\%$ perm. at l_p)
So inductance falls to $0.33 \cdot 14\mu\text{H} = 4.6 \mu\text{H}$
at 40 Amps

Volume = 5.2 cc (diameter = 24.6 mm,
length = 10.9 mm)

Example 2 (Single Toroid, $L = 14 \mu\text{H}$)

58043-A2 perm. 14μ $A_L = 7$ $l = 2.38$ cm

$$N = 1000 \cdot (0.014/7)^{0.5} = 44.7$$

$H = (0.4 \cdot P \cdot 44.7^2 \cdot 40) / 2.38 = 944$ (design
manual table: $\sim 71\%$ perm at l_p)
So inductance falls to $0.71 \cdot 14\mu = 9.9 \mu\text{H}$ at
40 Amps

Volume = 0.59 cc (diameter = 11.2 mm,
length = 5.96 mm)

**Example 3 (2 stacked toroids, $L = 14$
 μH)**

58273-A2 perm. 14μ $A_L = 12$ $l = 1.363$

$$N = 1000 \cdot [0.014 / (2 \cdot 12)]^{0.5} = 24$$

$H = (0.4 \cdot P \cdot 24^2 \cdot 30) / 1.363 = 884$ (design
manual table: $\sim 72\%$ perm. at l_p)
So inductance falls to $0.72 \cdot 14 \mu\text{H} = 10.0 \mu\text{H}$
at 40 Amps

Volume = 0.53 cc (diameter = 7.6 mm,
length = 11.7 mm)

FIG. 8

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Ch2 Zoom:

CH2 CSP voltage

CH1 Choke current

CH4 Output voltage

Ch2 Zoom: 1.0X Vert 10.0X Horz

CH2 CSP voltage

CH1 Choke current

CH4 Output voltage

Ch1 10.0 Vp2 Ch2 100 V M 500ns Ch3 1.86 V

7
8
9
0

C1PK-PK
37.6V

15 ohm load,
1022 V CSP,
500KHz PWM,
40N140 PWM sw,
13.7uH 58273x2,
R104gate=5 ohm,
R9=100K,
R10=2M-470pF,
C11=0.1 uF,
No Snubber,
249 ohm Opto Inp

FIG. 9

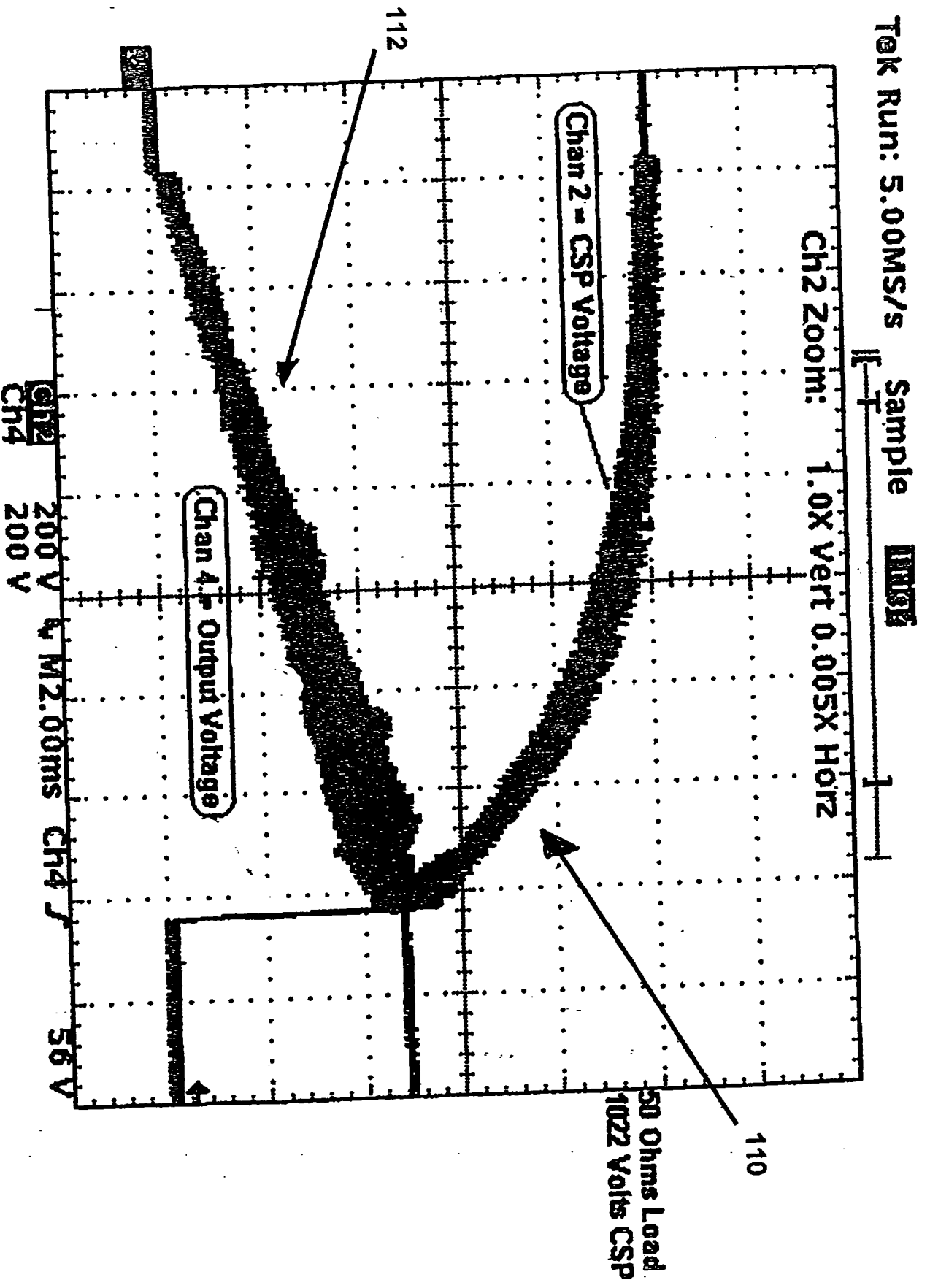


Figure 10

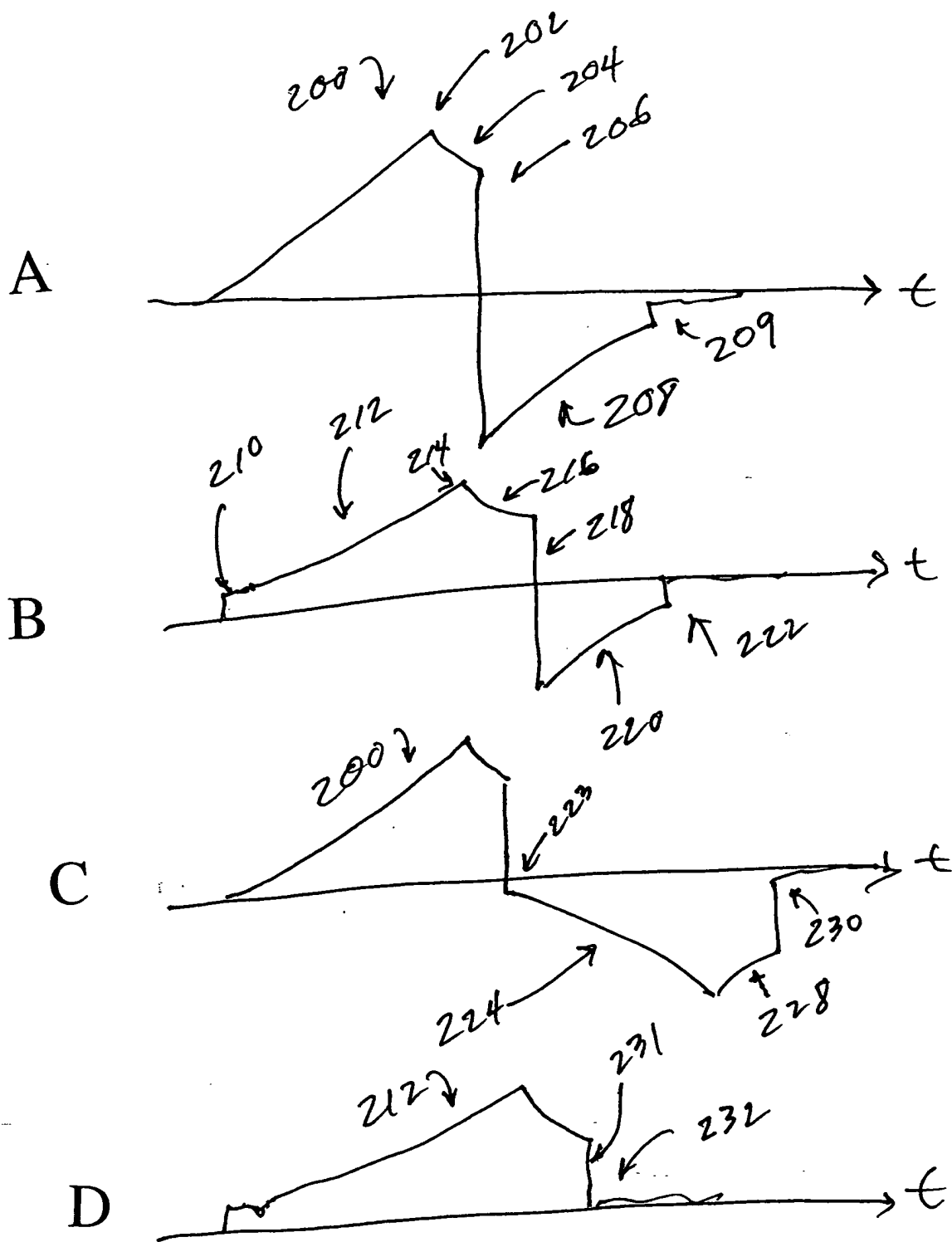


FIG. 11